

## **Does Epidemiological Paradox Exist in New Destination Countries for Immigrants? A Korea's Case**

### **Introduction:**

Korea, long known as a homogenous nation, is experiencing growing population of immigrants. It is estimated that there are about 1.6 million foreign residents in Korea, which accounts for about 3% of the total population. Among this number, naturalized citizens of Korea have reached 0.1 million, compared with total of 49 naturalized citizens in 1991. Seventy eight percent of naturalized citizens are composed of female, which are mostly marriage immigrants. According to Korean Statistical Information Service, the international marriage accounted for almost 10% of total marriage in Korea in 2013, which is transforming the deeply homogenous ethnic composition of Korea. With the increasing number of immigrants, Korea is becoming one of the new destination countries for immigrants, but studies on immigrant health in Korea are still at the beginning level and very little is understood about their health.

Major studies on immigration health are mostly done on well known destination countries for immigrants such as the United States, Canada, Australia and some European countries. It is widely agreed that individuals with higher socioeconomic status have better health than those at the lower levels. However, many results from the immigration health studies show different health phenomenon termed "epidemiological paradox", where the health of the immigrants, despite their lower SES, is similar or even better than their U.S. born counterparts, and moreover, their health state deteriorates the longer they stay in the destination country.

There are several explanations for this epidemiological paradox. First explanation is the healthy migration effect, which means that the only healthy people will be migrating to another country. Moreover, the host country often carries out rigorous examination that only accepts immigrants that are healthy. Second explanation is the salmon effect, which describes that immigrants return back to their native country when their health deteriorates. Third explanation is the discrimination theory. When they first arrive to the host country, the immigrants are not able to speak the language well and at the same time not used to the culture. As their stay in the host country increases, they start to realize and feel the discrimination that they didn't notice before. The discrimination theory explains why the health of the 2nd generation immigrants is often worse than the 1st generation immigrants in the U.S.

The acculturation theory can also explain the health pattern of the immigrants in their destination countries. The conventional acculturation model describes that immigrants who are healthy at the time of immigration adopt health-deteriorating culture of the immigrant country as their acculturation proceeds, and thus their health status deteriorates. These changes are thought to be linear, so it is also called "straight line assimilation". However, more recently, segmented assimilation theory is starting to get more attention, where it states that the immigration health and acculturation level are more complex than the linear relationship. The segmented assimilation theory states that assimilation is dependent upon different factors such as social contexts of the immigration that may result in a non-linear, non-unidirectional assimilation outcome.

There is an increasing call for need on the study to examine the health status of immigrants in Korea related to their acculturation level. This paper aims to examine the general mental health status of immigrants in Korea, focusing on immigrants with permanent residency or citizenship of Korea across the country. Our hypothesis is that the general mental health status of immigrants will also show the epidemiological paradox, thus worsen with greater level of acculturation in Korea, largely due to the discrimination theory explained above. This study is significant in that it will contribute to the literature of epidemiological paradox in the context of new destination countries of the immigrants.

### **Method:**

#### **Data**

The Survey data of Foreign Residents in Korea 2012 were used to estimate logistic regression models of mental health among foreign residents in Korea, including permanent residents and naturalized citizens. The sample size of n=1159 were used, with n=649 having residency status and n=510 being the naturalized citizens of Korea.

#### **Health Outcomes**

To measure the level of acculturation, duration of life spent in Korea was used, categorized into six groups (less than 4 years, 4-5 years, 6-7 years, 8-9 years, 10-19 years and greater than 20 years).

General mental health status was assessed by the modified version of the Hopkins Symptom Checklist (HSCL) with total of 14 questions, which is known for measuring non-specific psychological distress. With 5 being extremely distressed and 1 feeling no distress at all, most study uses 1.75 as a cut-off point for indications of mental distress for further diagnosis. In this study, scale of 2 or below was classified into having excellent/very good/good mental health, and scale of 3 or above was classified into having fair/poor mental health.

### Statistical Analysis

Statistical Analyses were performed using SAS 9.4 to conduct multiple logistic regression to investigate the probabilities of being unhealthy (high levels of psychological distress) with covariates sex, age, marital status, income level, education level, perceived discrimination and language proficiency, which are known as key health determining variables for the acculturation of immigrants.

### Results:

#### Descriptive Analyses (Table 1 and Table 2)

Table 1 presents the socio-demographic characteristics of sample, divided into residency group and citizenship group. The proportion of female of citizenship group is higher (85.88%) than that of the residency group (63.79%), which reflects the fact that most naturalized citizens in Korea are female marriage immigrants. Compared to residency group, the proportion of citizenship group belonging to lower age group is higher, as 29.41% of citizenship group belongs to 0-29 age group compared to 16.49% of residency group. Final degree of the residency group is higher than that of the citizenship group, as 24.5% of the residency group has degree above university compared to 7.65% of the citizenship group.

Table 2 provides percentage distributions of the mental health state by different duration time in Korea divided into 6 groups. For each group of duration, the proportion for fair/poor mental health status is higher than excellent/very good/good mental health status, and the highest proportion for fair/poor mental health status is in the duration of 20+, 10-19 and 0-3 years, and the highest proportion of the total sample is in 6-7 year group.

**Table 1. Socio-demographic Characteristics of Sample (n=1159)**

		Total		Residency		Citizens	
		N	%	N	%	N	%
Sex				649		510	
	male	307	26.49	235	36.21	72	14.12
	female	852	73.51	414	63.79	438	85.88
Age	0-29	237	22.17	107	16.49	130	29.41
	30-39	319	27.52	169	26.04	150	29.41
	40-49	326	28.13	210	32.36	116	22.75
	50-59	195	16.82	127	19.57	68	13.33
	60+	62	5.35	36	5.55	26	5.1
Final degree	Below middle school	366	31.58	153	23.57	213	41.76
	High school	465	40.12	255	39.29	210	41.18
	University	130	11.22	82	12.63	48	9.41
	Above University	198	17.08	159	24.5	39	7.65
Marital Status	currently not married	171	14.75	108	16.64	63	12.35
	currently married	988	85.25	541	83.36	447	87.65
Korean Proficiency	not well/not at all	55	4.75	33	5.08	22	4.31
	very well/well	1104	95.25	616	94.92	488	95.69
Income (million)	< 1	148	12.77	67	10.32	81	15.88
	1-2	413	35.63	222	34.21	191	37.45
	2-3	314	27.09	151	24.81	163	30
	3-4	130	11.22	90	13.87	40	7.84
	4+	154	13.29	109	16.8	45	8.82
Duration in Korea	0-4	108	9.32	85	13.1	23	4.51
	4-5	266	22.95	142	21.88	124	24.31
	6-7	319	27.52	133	20.49	186	36.47
	8-9	135	11.65	55	8.47	80	15.69
	10-19	233	20.1	141	21.73	92	18.04
	20+	98	8.46	93	14.33	5	0.98

**Table 2. Mental health status of the immigrants by duration**

Duration	Mental Health Status				Unweighted Sample Size (n=1159)
	Fair/poor		Excellent/very good/good		
	N	%	N	%	
0-3	84	77.78	24	22.22	108
4-5	169	63.53	97	36.47	266
6-7	206	64.58	113	35.42	319
8-9	98	72.59	37	27.41	135
10-19	185	79.40	48	20.6	233
20+	80	81.63	18	18.37	98

**Multivariate Analyses**

Table 3 presents the logistic regression coefficients for the mental health outcomes. The acculturation coefficients are the greatest at 4-5 and 6-7 years. This means that the odds of having poor mental health increases with increased level of acculturation up to 7 years. At the same time, the acculturation coefficients for duration in Korea after 7 years are not statistically significant, indicating there is no clear association between the mental health status and acculturation level. Moreover, discrimination, type of status (residency or citizenship) and Korean proficiency, which are acculturation factors, are significantly associated with negative mental health outcomes.

**Table 3. Logistic regression coefficients of mental health outcomes amongs immigrants in Korea**

Mental Health Outcomes		
Type	residency	0
	citizenship	0.451**
Sex	male	0
	female	0.642***
Age	0-29	0
	30-39	-0.148
	40-49	0.038
	50-59	-0.166
	60+	0.082
Final degree	Below middle school	0
	High school	0.256
	University	0.237
	Above University	0.218
Marital Status	currently not married	0
	currently married	-0.181
Korean Proficiency	not well/not at all	0
	very well/well	-0.738*
Income (million)	< 1	0
	1-2	-0.116
	2-3	-0.518*
	3-4	-0.480+
	4+	-1.051***
Discrimination	no	0
	yes	0.461**
Duration in Korea	0-3	0
	4-5	0.703*
	6-7	0.543+
	8-9	0.210
	10-19	-0.039
	20+	0.256

\*\*\*p&lt;0.001; \*\*p&lt;0.01; \*p&lt;0.05; +p&lt;0.10

**Results Summarized:**

Our results from the logistic regression show that the general mental health status of immigrants worsens with longer duration of time, but only up to 7 years. After 7 years, the health status moves back to about the same level, and results in not much difference compared to 0-3 year group. Moreover, the health status gets better as the Korean proficiency increases. Based on these results, the health status of immigrants in Korea appears to be different from the health status pattern shown in the traditional destination countries. We will further analyze the above results with the immigrants divided into permanent residency group and naturalized citizenship group. We will also further discuss what effect the feeling of discrimination has on the mental health status of the immigrants, and also whether the epidemiological paradox exists in the segmented acculturation point of view.

Provisionally, it seems that the new destination countries like Korea have a different health pattern of the immigrants from the traditional destination countries, as our results show a different pattern from the epidemiological paradox. We also predict that although the feeling of discrimination is a very important predictor of the health status of the immigrants, it affects the mental health status independently of the level of acculturation.